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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,766	04/06/2006	Martin Albrecht	CO/25-22960/A/PCT	2527

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EXAMINER

LEUNG, WAYNE K

ART UNIT	PAPER NUMBER
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4171

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,766	Applicant(s) ALBRECHT ET AL.	
	Examiner Wayne K. Leung	Art Unit 4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>06/30/2006 and 07/17/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear whether the limitation “with a base” refers to the compound of formula I only, or if it refers to any one of a metal alcoholate, metal halide, or a compound of formula I.

Regarding claim 3, there are two metals in claim 1 which may be the antecedent basis for “the metal”, either the metal alcoholate or the metal halide.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4-10, and 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Das et al. (US Patent 4,526,910).

Regarding claims 1, 2, 5-9, 12, and 14, Das et al. teaches a coating composition of a crosslinkable resin, examples of which include acrylic resins, urethanes, polyesters,

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and epoxies, which contains substantially colorless, substantially inorganic microparticles having an average particle diameter of 1-150 nm (Col. 2, lines 30-56, Col. 4, lines 35-68, Col. 7, lines 3-11), which corresponds to the composition in claims 1, 6, and 12. In particular, Das et al. teaches that a desirable class of microparticles includes sols, and that small particle silicas are used to form substantially colorless transparent coating compositions when the coating compositions are free of dyes and pigments (Col. 7, lines 63-67, Col. 8, lines 7-13), which corresponds to the transparent coating in claim 2. Das et al. further teaches a method for preparing silica sols involving hydrolyzing alkoxy-silanes in an alcohol medium, in particular tetraalkyl orthosilicates and alkylalkoxysilanes (Col. 9, line 61-Col 10. line 6), where the inorganic microparticles range from 1-20% of the total weights of the resin, crosslinking agent, and microparticles (Col. 10, lines 47-53), corresponding to claims 8 and 14. In example 5, Das et al. hydrolyzes a mixture of tetraethylorthosilicate and ammonia in a solution of methanol and water, heated to reflux (Col. 14, lines 3-42), which corresponds to claims 5 and 9. As the solution is mostly methanol, the reflux temperature is just above that of methanol (64.7°C), which is within the range stated in the applicant's instant claim 7.

Regarding claim 4, Das et al. teaches that the alcohol may be methanol, ethanol, n-propanol, isopropanol, or n-butanol (Col. 8, lines 39-44).

Regarding claim 10, Das et al. teaches that the composition can be incorporated into a high gloss coating composition, and may employ metallic flakes as pigments (Col. 11, line 32-Col. 12, line 15).

Regarding claim 13, Das et al. teaches the use of optional ingredients including fillers, antioxidants, catalysts to promote drying or curing, resinous pigment dispersants, and thixotropes (Col. 6, lines 51-61).

Regarding claim 15, the alcohol solvents of methanol, ethanol, propanol, and butanol, as well as mixtures of these solvents with water, inherently have a boiling point of between 50-140°C, and as such could be distilled without the use of reduced pressure and thus would anticipate the instant claim. The examiner notes that the term “most” in instant claim 15 is interpreted to be greater than 50%. Example 5 as given by Das et al. teaches that 1695 g of distillate is removed, which is greater than 50% of the 2971 g of total solvent.

Regarding claim 16, Das et al. teaches the use of urethane resins, which are prepared from one or more organic polyisocyanates and one or more polyols (Col. 3, lines 30-44).

Regarding claim 17, Das et al. teaches that the coating compositions can be cured in a variety of ways, such as heat curing (Col. 11, lines 15-31).

5. Claims 1-6, 12, 13, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ryang et al. (US patent 5,962,608).

Regarding claims 1, 3, 4, 6, and 12, Ryang et al. teaches a polymer for coating that is prepared from a mixture containing a polymerization material and the product of a hydrolyzed chelated metal oxide (Col. 2, lines 43-46). The polymerization material is a curable resin of at least one of an acrylic resin, polyester resin, alkyd resin,

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polyurethane resin, epoxy resin, phenol resin, and amino resin (Col. 3, lines 39-49).

The metal of the metal oxides includes transition metals, alkaline earth metals and metals of Groups 3A, 4A, and 5A, including titanium, chromium, iron, zinc, zirconium, and niobium (Col. 22, line 66-Col 23, line 9). The metal oxides have an average diameter is less than 10 nm (Col. 22, lines 23-29). The liquid phase of the metal oxide sol composition may be alcohols, glycols, and other protic organic solvents, including methanol, ethanol, propanol, isopropanol, sec-butanol, or t-butanol (Col. 22, lines 1-16).

Regarding claim 2, Ryang et al. discloses that the cured polymer coating is substantially transparent (Col 32, lines 61-63).

Regarding claim 5, Ryang et al. discloses that the epoxy resin may be "solubilized" by neutralization with a basic compound such as an organic amine, including diethylamine, triethylamine, triethanolamine, dimethylethanolamine, etc (Col. 10, lines 25-32). Thus, a solution made with an epoxy resin would contain an amine used in the capacity of a base.

Regarding claim 13, Ryang et al. teaches that other ingredients which may be dispersed into the composition include fillers, pigments, and shrink control agents (Col. 30, lines 14-19)

Regarding claims 17 and 18, Ryang et al. teaches that desirable properties of the polymers within the composition include abrasion resistance and mechanical strength (Col. 31, lines 45-52). Ryang further teaches that the prepolymer mixture containing the resin and metal oxide sol can be applied to any substrate using a number of techniques, including spin coating, dip coating, spray coating, electrical components coating, die

coating, and bar coating (Col 32, lines 43-50). Ryang et al. teaches that the substrate may then be exposed to a photocuring source such as UV or visible light to achieve a uniform cure (Col. 32, lines 51-61).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryang et al. (US patent 5,962,608), henceforth referred to as 608, and Ryang et al. (US patent 6,169,119 B1), henceforth referred to as 119.

608 teaches a polymer for coating that is prepared from a mixture containing a polymerization material and the product of a hydrolyzed chelated metal oxide (Col. 2, lines 43-46). 608 further teaches that the composition may contain pigments. Although implied, 608 does not teach that the composition may be used in paints.

However, 119 does teach that metal oxides may be incorporated into resins and paints (Col. 9, lines 6-17). These resins may include polyester, polyurethane, epoxy, acrylic, alkyd, and phenolic resins. 608 and 119 are combinable because both are teaching in the same area of endeavor, namely the use of metal oxide sols in resins. The resulting metal oxide sols would have desirable properties, including abrasion resistance, adhesion enhancement, chemical attack resistance, corona resistance, high

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compatibility, high dispersibility, mechanical strengthening, oxide erosion resistance, plasma etch resistance, prevention of void formation, resistance to monoatomic oxygen attack, and small size (Col. 8, lines 53-67). Thus, at the time of the invention, it would have been obvious to one of ordinary in the art to use the coating mixture taught in 608 in the manner taught by 119.

Priority

8. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne K. Leung whose telephone number is (571)270-5460. The examiner can normally be reached on M-Th 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4171

Wayne K Leung
Examiner
Art Unit 4171

/WKL/